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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/599,948	06/23/2000	Simon Furnidge	367.38669X00	8956

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EXAMINER

TRAN, PABLO N

ART UNIT	PAPER NUMBER
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2685

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DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/599,948

Applicant(s)

FURMIDGE, SIMON

Examiner

Pablo N Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Horie et al.* (5,568,098) in view of *Otaka* (6,215,989).

As per claims 1 and 7, *Horie et al.* disclose a transmitter for a portable radio device comprising a modulator, including a switching circuit, having a first port for inputting a baseband signal and a second port for inputting a local oscillator signal to the switching circuit which provide a conductance waveform at a frequency multiple of the local oscillator signal for up-converting the baseband signal to a radio frequency modulated carrier (fig. 5, col. 3/ln. 58-col. 4/ln. 67).

Horie et al. do not explicitly disclose such controls the gain of the modular to control the output level of the modulator. However, such gain control method of the modulator is well known in the art, as disclosed by *Otaka* (fig. 6-10, col. 7/ln. 29-col. 10/ln. 48). Therefore, it would have been obvious to one of ordinary skill in the art to provide such method of gains control, as taught by *Otaka*, to the transmitter of *Horie et*

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al. to control input amplitude signal at an optimum gain level while minimizing the reduction of the S/N ratio.

As per claims 2 and 8, the modified systems of *Horie et al.* disclose a local oscillator signal drives the switching means at a multiple of its frequency (see *Horie et al.*, fig. 5, col. 3/ln. 58-col. 4/ln. 67).

As per claims 3 and 9, the modified systems of *Horie et al.* disclose means for controlling the gain of the modulator comprises current control means (see *Otaka*, fig. 6-10, col. 7/ln. 29-col. 10/ln. 48).

3. Claims 4-6 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Horie et al.* (5,568,098) in view of *Otaka* (6,215,989) and further in view of *Hickman* (LTPs and active double balanced mixers, vol. 99, no. 1683, pg 126-128).

As per claims 4-5 and 10-11, the modified systems of *Horie et al.* do not specifically disclosed the transmitter having two cross-connected long tail pairs of bipolar transistors. *Hickman* disclosed such cross-connected long tail pairs of bipolar transistors. Therefore, it would have been obvious to one of ordinary skill in the art to provide cross-connected long tail pairs of bipolar transistors, as discussed in *Hickman*, to the transmitter of the modified systems of *Horie et al.* to minimized out-of-band emissions in a subsequent mixing with a carrier signal to generate a frequency modulated signal.

As per claims 6 and 12, as stated above in claim 1, the modified systems of *Horie et al.* do not explicitly disclosed the LO signal is provided at an even multiplication. However, it is common knowledge in the art that the reference frequency

generator is set to one of the LO frequencies (for example, 7.6MHZ, 19khz, or 38khz) are purely dependent on the frequency requirement of the particular transmitter availability of reference frequency generator. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the reference frequency generator at even multiplication in order to expand the communication system application to have better flexibility or more versatility so that various reference frequency generators can be used for the FM transmitter systems.

4. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Rozenblit et al.* (6,658,237) in view of *Otake* (6,215,989).

As per claims 1 and 7, *Rozenblit et al.* disclose a transmitter for a portable radio device comprising a modulator, including a switching circuit, having a first port for inputting a baseband signal and a second port for inputting a local oscillator signal to the switching circuit which provide a conductance waveform at a frequency multiple of the local oscillator signal for up-converting the baseband signal to a radio frequency modulated carrier (fig. 6, col. 12/ln. 15-col. 13/ln. 54, col. 20/ln. 36-47).

Rozenblit et al. do not explicitly disclose such controls the gain of the modular to control the output level of the modulator. However, such gain control method of the modulator is well known in the art, as disclosed by *Otake* (fig. 6-10, col. 7/ln. 29-col. 10/ln. 48). Therefore, it would have been obvious to one of ordinary skill in the art to provide such method of gains control, as taught by *Otake*, to the transmitter of *Rozenblit et al.* to control input amplitude signal at an optimum gain level while minimizing the reduction of the S/N ratio.

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As per claims 2 and 8, the modified systems of *Rozenblit et al.* disclose a local oscillator signal drives the switching means at a multiple of its frequency (see *Rozenblit et al.*, fig. 6, col. 12/ln. 15-col. 13/ln. 54, col. 20/ln. 36-47).

As per claims 3 and 9, the modified systems of *Rozenblit et al.* disclose means for controlling the gain of the modulator comprises current control means (see *Otaka*, fig. 6-10, col. 7/ln. 29-col. 10/ln. 48).

5. Claims 4-6 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Rozenblit et al.* (6,658,237) in view of *Otaka* (6,215,989) and further in view of *Hickman* (LTPs and active double balanced mixers, vol. 99, no. 1683, pg 126-128).

As per claims 4-5 and 10-11, the modified systems of *Rozenblit et al.* do not specifically disclosed the transmitter having two cross-connected long tail pairs of bipolar transistors. *Hickman* disclosed such cross-connected long tail pairs of bipolar transistors. Therefore, it would have been obvious to one of ordinary skill in the art to provide cross-connected long tail pairs of bipolar transistors, as discussed in *Hickman*, to the transmitter of the modified systems of *Rozenblit et al.* to minimized out-of-band emissions in a subsequent mixing with a carrier signal to generate a frequency modulated signal.

As per claims 6 and 12, as stated above in claim 1, the modified systems of *Rozenblit et al.* do not explicitly disclosed the LO signal is provided at an even multiplication. However, it is common knowledge in the art that the reference frequency generator is set to one of the LO frequencies (for example, 7.6MHZ, 19khz, or 38khz) are purely dependent on the frequency requirement of the particular transmitter

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availability of reference frequency generator. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the reference frequency generator at even multiplication in order to expand the communication system application to have better flexibility or more versatility so that various reference frequency generators can be used for the FM transmitter systems.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pablo Tran whose telephone number is (703)308-7941. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban, can be reached at (703)305-4385.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

PABLO N. TRAN
PRIMARY EXAMINER

February 11, 2004


A02685